

Assurance level: maximum possibility of damage exposure for a product/package that successfully completes test, may be based either on actual measured cumulative percentage occurrences or on statistically predicted occurrence levels

Break-bulk: shipment of goods packed in small, separable units

Coefficient of restitution (e): ratio of rebound velocity to impact velocity

Critical acceleration level: minimum acceleration level that must be achieved before damage can occur

Critical velocity change: minimum velocity change which must be achieved before damage can occur (velocity change is area under acceleration time history of shock, or energy contained in shock)

Cushion curves: performance data which measure the amount of cushioning needed to protect against certain shock loads, generated by dropping weights onto 8" by 8" pieces of foam of varying density and thickness

Damage boundary (DB): testing protocol that determines which shock inputs will cause damage to product and which will not

Dynamic compression (mechanical-compression test): compression test in which package is placed between two driven platens and compressed until crushed

Ergonomics: adaptation of technical environment, especially at work, to maximize productivity by reducing operator fatigue and discomfort

Failure load: weight at which container exhibits signs of destruction during compression test

Focused simulation: use of field measurement of distribution hazards to set laboratory test specifications, defined for particular type of hazard and environment of observation

Fragility testing: test that subjects products to increasing levels of dynamic forces until failure occurs

General simulation: shipping test procedure derived from actual field data, which consists of measurement on broad range of hazards and non-specific modes of transportation and is designed using worst possible conditions

Integrity testing: shipping test procedure that determines whether product plus package is strong enough to withstand test conditions representing generic distribution hazards but requires little or no knowledge of specific shipping environment

Just-In-Time (JIT): shipping method to reduce warehousing and store inventories, where manufacturer ships small quantities to customers on demand and requires fast, efficient product distribution

Lognormal distribution: standard statistical analysis of natural logarithms of data points, commonly used for general reliability analysis, cycles to failure in fatigue, material strengths and loading variables in probabilistic design

Random vibration test: method of vibration testing to determine overall effect of vibration, in which package is vibrated at a number of different frequencies simultaneously

Repetitive shock test: method of vibration testing which examines general durability of packaged products by increasing frequency of displacement of table surface until package starts to bounce, then maintaining frequency for set period of time and inspecting package for damage

Resonance (sweep-and-dwell) test: two-part vibration test to determine frequencies at which damage occurs—first, vibration table set at fixed acceleration and subjected to sweep of frequencies over

specified range to determine resonant frequencies, those at which package will experience vibration forces greater than input forces, then package vibrated at resonant frequencies for set period of time

Single-drop counters: instruments that only record if package is dropped above a pre-set height

Static compression (dead-load test): compression test in which package is weighted by nonmoving load until crushed

Tariff: schedule of prices or fees that carriers charge shippers

Transmissibility plot: graph that plots ratio of component response to table input acceleration as function of frequency

Trigger level: pre-set level of acceleration below which instrument will not record

Unit ratio: ratio between drop height measured using zero G channel and calculated equivalent drop height

Unitization: process of putting packaged products into single unit for shipping

Weibull distribution: general purpose reliability distribution used for material strength and times-to-failure of electronic and mechanical components, equipment, or systems

Zero G channel: method of calculating drop height from distance package falls while under constant 1G gravitational force during free fall